

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-_____

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF KERMAN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. The City of Kerman (hereafter City or Discharger) submitted a Report of Waste Discharge (RWD), in [9 May 2007](#), for a modification and expansion (hereafter Expansion Project) of its wastewater treatment facility (WWTF). The RWD proposes to expand the existing WWTF from a monthly average discharge flow of 1.2 million gallons per day (mgd) to 2.0 mgd. The WWTF provides services for about 13,500 residents and limited light industry.
2. The WWTF is along Church Avenue, approximately one-quarter mile south of the City, in Section 13, T14S, R17E, MDB&M, as shown on [Attachment A](#), which is attached hereto and made a part of this Order by reference.
3. Waste Discharge Requirements (WDRs) Order No. 5-00-050, adopted on 17 March 2000, restricts the monthly average discharge flow to 1.2 mgd. The WDRs prescribe effluent limitations on a monthly average basis for 5-day biochemical oxygen demand (BOD₅), total suspended solids (TSS) and settleable solids (SS). The City is unable to consistently comply with the above limits. An enforcement order to be considered separately requires the Discharger to complete the Expansion Project and comply with the limits.
4. The purpose of this Order is to rescind WDRs Order No. 5-00-050 and prescribe requirements that reflect the Discharger's Expansion Project.
5. The RWD presents information on site conditions, the existing wastewater treatment process and quality, and the conceptual design of the Expansion Project. [Attachment B](#), which is attached hereto and made a part of this Order by reference, depicts a plan view of the existing WWTF and Expansion Project, as depicted in the RWD.

Existing Wastewater Treatment Facility

6. The existing WWTF consists of headworks with an auger for grinding solids, a Parshall flume flowmeter, a lift station with pumps, a primary aeration pond (CM Lagoon 1), three secondary aeration ponds (PM Lagoons 1, 2, and 3), three settling ponds (Settling Ponds 1, 2 and 3), and three disposal ponds (Disposal Ponds 4, 5 and 6). [Attachment C](#) of this Order, which is attached hereto and is made part of this Order by reference, depicts a process flow diagram of the existing WWTF.

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7. The WWTF's collection system is composed of about 29 miles of gravity sewer lines, which consist of a network of 6-inch and 8-inch diameter lines, which connect to larger 10-inch and 12-inch main lines and converge to two pump stations. Within the last five years, the Discharger added larger main lines in high use areas, added a new lift station, and made repairs to the existing lift station.
8. Influent enters at the headworks, which is enclosed in a concrete structure approximately 15 feet below grade. The headworks houses a screen/compactor, an open channel flow meter, three self-priming pumps, and two submersible pumps. Solids from the screen/compactor are dewatered and deposited in a trash-bin. Influent is then discharged to CM Lagoon 1, which is approximately 12 ft deep, and has a total volume of 8.8 acre-ft. Aeration is provided by two 25 horsepower (hp) and one 8 hp surface aerators. Wastewater from CM Lagoon 1 is discharged to PM Lagoons 1 through 3, which are typically operated in series. Each PM Lagoon is 10 feet deep, has a wastewater volume of 4.8 acre-ft, and is equipped with two 1.5 hp and four 1 hp surface aerators. Wastewater from PM Lagoon 3 is discharged into Settling Ponds (or Disposal Ponds) 1 and 2, which are typically operated in parallel. Each settling pond is 6 feet deep, and has a wastewater volume of about 11.8 acre-ft. The WWTF has a splitter box, which allows the Discharger to operate the treatment units in parallel or series.
9. Effluent from the Settling Ponds is discharged to Disposal Ponds 3, 5, and 6, totaling 12 acres with a total wastewater volume of 124 acre-ft. Disposal Pond 3 is 6 feet deep, with a wastewater volume of 22.3 acre-ft; and Disposal Ponds 5 and 6 are seven feet deep, with a wastewater volume of 51 acre-ft, each.
10. The Discharger collects storm water from the City and discharges it to an 11-acre retention basin at the WWTF. Storm water is kept separate from the City's effluent.
11. Self-monitoring reports from 2006 indicate that winter flows are not higher than summer flows, demonstrating insignificant inflow and infiltration to the collection system during winter months.
12. Self-monitoring data from January 2006 to December 2006 characterize the discharge as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Influent</u>	<u>Effluent</u>	<u>% Removal¹</u>
Monthly Average Discharge Flow	mgd	1.13	NS ²	--
Conventional Pollutants				
pH (range)	s.u. ³	7.0 – 8.5	8.0 – 9.1	--
Settleable Solids	mL/L	4.95	0.1	98
BOD ⁴	mg/L	188	39	79
TSS ⁵	mg/L	NS	41	63
Salts				
Chloride	mg/L	NS	45 ⁶	--

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Influent</u>	<u>Effluent</u>	<u>% Removal¹</u>
Sodium	mg/L	NS	80 ⁶	--
EC ⁷	µmhos/cm	NS	661	--
TDS ⁸	mg/L	NS	335	--
Nitrogen				
Nitrate as Nitrogen	mg/L	NS	NS	--
Total Nitrogen ⁹	mg/L	NS	29 ¹⁰	--
Metals ¹²				
Aluminum	µg/L	NS	340	--
Iron	µg/L	NS	190	--
Manganese	µg/L	NS	<20	--

¹ Percent removal (% removal)

² Not sampled (NS)

³ Standard units (s.u.)

⁴ 5-day biochemical oxygen demand (BOD)

⁵ Total suspended solids (TSS)

⁶ Based on two samples.

⁷ Electrical conductivity at 25°C (EC)

⁸ Total dissolved solids (TDS)

⁹ Calculated by summing the concentrations of nitrate as nitrogen and TKN, and assuming the concentration of nitrite is negligible.

¹⁰ Assumed to be mostly in the form of TKN.

¹¹ Concentrations based on one sampling event.

13. The EC of the WWTF influent ranges from about 350 to 450 µmhos/cm over source water.

Expansion Project

14. The design of the Expansion Project is not complete; however, the conceptual design is described below. [Attachment C](#) depicts a conceptual process flow diagram of the Expansion Project.

15. The RWD describes the City's plans to upgrade the existing headworks, as necessary. Recent changes will include replacing the existing Parshall Flume flow metering structure with a magnetic flow meter on the pump discharge line.

16. The City accepts septage at a manhole directly outside the gated area of the WWTF. The RWD describes the City's plans to install a new 5,000-gallon storage tank for septage receiving, management, and equalization. The tank will be to the west of the existing

headworks, in a newly gated area that will provide access for after-hours septic deliveries. The site will be managed on an “honor system,” with video camera monitoring.

17. The RWD describes the City’s plans to construct a Biolac System®, which is an extended aeration biological treatment process with diffused fine bubble aeration to replace the existing mechanical surface aerated pond system. The treatment process will be operated to allow for de-nitrification. The Biolac system will utilize the existing CM Lagoon 1 and will bring the treatment capacity to 2 mgd. The WWTF will consist of an aeration basin (CM Lagoon 1), two concrete clarifiers, return and waste activated sludge pumps, aerobic sludge digester, and sludge handling and storage facilities. Effluent from the clarifiers will be discharged to Storage Ponds A through C (current PM Lagoons 1 through 3).
18. Sludge from the clarifiers will be pumped to the aerobic sludge digester. The digester will utilize an existing reinforced concrete aeration basin from the previous WWTF (prior to the existing WWTF). Digested sludge, at approximately 2-6 percent solids, will be pumped to reinforced concrete sludge drying beds during the summer and mechanically dewatered in the winter. Sludge will then be hauled offsite to a permitted facility.
19. The water balance presented in the RWD indicates that the City will need approximately 31.6 acres of percolation area to dispose of 2.0 mgd, assuming a percolation rate of 2.98 inches per day. The City proposes converting Settling Ponds 1 and 2 to Disposal Ponds. In total, the City will have seven Disposal Ponds (Disposal Ponds 1 through 3 and 5 through 8) with a total storage capacity of 338 acre-feet. [Attachment B](#) depicts the locations of the existing and proposed disposal ponds.
20. The RWD indicates that the proposed discharge will achieve the following effluent quality.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Monthly Average Discharge Flow	mgd	2.0	--
BOD	mg/L	30	60
TSS	mg/L	30	60
Total Nitrogen	mg/L	10	--

21. It is anticipated that effluent mineral and metals quality characterized in [Finding 12](#) for the existing WWTF will be similar to the effluent quality resulting from the Expansion Project.

Sanitary Sewer Overflows

22. A “sanitary sewer overflow” is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the treatment facility. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities.

23. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order No. 2006-003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the order. The Discharger's collection system is greater than one mile in length; therefore the General Order is applicable.

Water Recycling

24. The City is not proposing water recycling as part of its proposed project. Historically, the City recycled a portion of the discharge on nearby properties. Some of these properties contained almond orchards. Due to concerns about using undisinfected secondary effluent on orchards, the City stopped recycling. In July 2003, the City sent letters to area farmers to investigate the feasibility of again initiating water recycling, but has been unable to obtain agreements. The RWD indicates that the City is "open to reclamation of the effluent for irrigation should the opportunity become available in the future."

Site-Specific Conditions

25. The WWTF is in an arid climate characterized by hot dry summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evaporation in the discharge area are about 11 inches and 63 inches, respectively, according to information published by California Department of Water Resources (DWR).

26. Areal soils are Hesperia Sandy Loam, according to the USDA Natural Resources Conservation Service. These soils are well drained. The upper 11 to 15 inches consist of sandy loam followed by silt.

27. The WWTF is not within a 100-year floodplain according to Federal Emergency Management Agency maps.

28. The Discharger is not required to obtain coverage under a National Pollutant Discharge Elimination System general industrial storm water permit for the WWTF because all storm water runoff is retained onsite and does not discharge to a water of the United States.

29. Land use in the WWTF vicinity is agricultural and industrial with some confined animal operations south of the WWTF, and the City of Kerman one mile to the north. The primary crops grown within five miles of the WWTF include cotton, alfalfa, corn (forage), almonds, grapes, dry beans, and corn according to DWR land use data published in 1994. Irrigation water is supplied primarily by groundwater.

Groundwater Considerations

30. Regional groundwater is approximately 90 feet below ground surface and flows south-southwesterly, according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 1996. An 80-foot thick modified E-clay layer occurs about 500 to 550 feet bgs.
31. Although hydraulic continuity between aquifers is restricted, some agricultural wells within the vicinity are likely screened within the upper and lower aquifers to maximize well production. This uppermost layer has the potential to have hydraulic continuity between the two aquifers resulting in lower quality water from the uppermost aquifer to migrate into the higher quality aquifers just above and below the E-clay.
32. The City obtains its source water from five deep groundwater wells. The source water is of good quality, with the exception of uranium, as indicated by the City's 2005 Annual Water Quality Report. Elevated concentrations of uranium in groundwater have resulted in the City drilling additional wells to meet drinking water standards. Excerpts of this Annual Report are presented below.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Range</u>	<u>Average</u>
Arsenic	mg/L	6.0 – 8.0	7.25
Chloride	mg/L	4.0 - 11	6.5
EC	µmhos/cm	200 – 300	230
Nitrate (as N)	mg/L	1.7 – 2.0	1.9
TDS	mg/L	130 - 240	160
Uranium	mg/L	0.828 - 37.2	8.70

33. The Discharger's groundwater monitoring network is shown in [Attachments A and B](#). The network was constructed in 2002 and consists of three wells: one upgradient (MW-1) and two downgradient (MW-2 and MW-3). The following table characterizes groundwater from the City's monitoring wells (data from 2003, 2005, and 2006). The data for iron, manganese, sulfate, and total organic carbon (TOC) are from a one-time sampling event immediately after the groundwater wells were installed.

		<u>MW-1</u>		<u>MW-2</u>		<u>MW-3</u>	
		<u>(Upgradient)</u>		<u>(Downgradient)</u>		<u>(Downgradient)</u>	
		Mean	Range	Mean	Range	Mean	Range
Nitrate (as N)	mg/L	12	<0.2-16	1.25	<0.2-2.3	0.9	<0.2-1.0
TN ¹	mg/L	--	--	--	--	--	--
EC	µS/cm	1545	1300-2000	922	720-1000	767	710-840
TDS	mg/L	982	890-1100	585	480-650	480	380-540
Chloride	mg/L	201	156-310	58	52-65	46	10-58

		MW-1 (Upgradient)		MW-2 (Downgradient)		MW-3 (Downgradient)	
		Mean	Range	Mean	Range	Mean	Range
Arsenic	µg/L	3.9	2.5-5	5.5	4.0-9.4	19	13-31
Iron	mg/L	<0.05	--	<0.05	--	<0.05	--
Manganese	mg/L	<0.03	--	<0.03	--	<0.03	--
Sulfate	mg/L	100	--	33	--	10	--
TOC ²	mg/L	1.6	--	1.4	--	3.1	--
Chromium	µg/L	9	<10 to 18	7.6	<10 to 18	2.5	<5
Copper	µg/L	3.2	<5 to 9	2.5	<5	2.5	<5
Nickel	µg/L	11.2	10 to 28	1.3	<0.2-2.3	0.9	<0.2-1.0

¹ Total nitrogen

² Total organic carbon

34. The upgradient well (MW-1) is much higher in EC, chlorides, and metals than the downgradient wells (MW-2 and MW-3). Concentrations of nitrate exceed the drinking water primary MCL of 10 mg/L and nickel exceeds the public health goal of 12 µg/L in MW-1. The upgradient well (MW-1) does not appear to represent true background conditions. The Discharger will need to assess the existing network to determine if additional wells are necessary.

Basin Plan, Beneficial Uses, and Water Quality Objectives

35. The Water Quality Control Plan for the Tulare Lake Basin, 2nd Edition, (hereafter Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Pursuant to Section 13263(a) of the California Water Code (CWC), these waste discharge requirements implement the Basin Plan.
36. Water in the Tulare Lake Basin is in short supply, requiring importation of surface water from other parts of the State. The Basin Plan encourages recycling on irrigated crops wherever feasible and indicates that evaporation of recyclable wastewater is not an acceptable permanent disposal method where the opportunity exists to replace an existing uses or proposed use of fresh water with recycled water. As indicated in [Finding 24](#), the City previously recycled effluent, but due to issues regarding crop type and effluent quality has been unable to obtain agreements with area farmers. The City shall periodically investigate the possibility of recycling effluent in the future.
37. The WWTF is in Detailed Analysis Unit (DAU) No. 233 within the Kings Basin hydrologic unit. The Basin Plan designates the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, industrial process and service supply, [and contact and non-contact recreation](#).

38. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the MCLs specified in Title 22. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
39. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
40. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including:
- a. The incremental increase in salts from use and treatment must be controlled to the extent possible or limited to a maximum of 1,000 $\mu\text{mhos/cm}$. The maximum EC shall not exceed the EC of the source water plus 500 $\mu\text{mhos/cm}$. When the source water is from more than one source, the EC shall be a weighted average of all sources.
 - b. Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.
- These effluent limits are considered reflective of best practicable treatment or control (BPTC).
41. The list of crops in [Finding 29](#) is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but is representative. Crops sensitive to salt and boron are currently being grown in the area. The effluent characterized in [Finding 12](#) should protect the crops grown. Additional monitoring for salt-specific constituents, such as boron, is necessary, but will likely be less than the quality specified in [Finding 40](#).
42. The Basin Plan requires municipal WWTFs that discharge to land to comply with treatment performance standards for BOD₅ and TSS. WWTFs that preclude public access and are greater than 1 mgd must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of both BOD₅ and TSS.

Antidegradation

43. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to the people of the State;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and
 - d. The discharger employs BPTC to minimize degradation.
44. Constitutes of concern that have the potential to degrade groundwater include, in part, salts and nutrients.
- a. For salinity, the Basin Plan contains effluent limits (EC of the source water plus 500 $\mu\text{mhos/cm}$, or a maximum of 1,000 $\mu\text{mhos/cm}$) that considered Resolution 68-16 when adopted. The discharge meets these limits and therefore should not unreasonably degrade the beneficial uses of groundwater with respect to salinity.
 - b. For nitrogen, if it could affect the beneficial uses of a high quality water, practicable measures to protect the water are: 1) treating the effluent such that it is below objectives for drinking water, or 2) storing the effluent in a manner that protects the underlying groundwater from percolation from ponds until it can be beneficially used on crops. The Discharger is planning to reduce the total nitrogen to less than 10 mg/L, as characterized in [Finding 20](#) and therefore not unreasonably degrade the beneficial uses of groundwater with respect to nitrate.

Treatment and Control Practices

45. The Expansion Project described in [Findings 14 through 21](#), once completed, provides treatment and control of the discharge that incorporates:
- a. secondary treatment;
 - b. a nitrogen reduction process;
 - c. appropriate biosolids storage and disposal practices;
 - d. an operation and maintenance (O&M) manual; and
 - e. certified operators to ensure proper operation and maintenance.

46. This Order establishes groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains requirements for a groundwater assessment for assuring that the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

Other Regulatory Considerations

47. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in Title 40, Code of Federal Regulations, Part 503, Standards for the Use or Disposal of Sewage Sludge, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to EPA. The RWD states that all biosolids will be hauled to a separate permitted facility.
48. As the discharge consists of treated municipal sewage and incidental discharges from treatment and storage facilities associated with a municipal wastewater treatment plant, and as these discharges are regulated by waste discharge requirements consistent with applicable water quality objectives, the Facility and its discharge is exempt from containment pursuant to Title 27, Section 20090(a).

CEQA

49. The Discharger, as the lead agency for purposes of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended), adopted in 1993 a General Plan that evaluates the potential environmental impacts resulting from the development of the City through 2013. The 1993 General Plan does not identify the wastewater discharge flow resulting from population growth or the potential environmental impacts from the discharge of wastewater. The Discharger also adopted on 6 September 2000 a negative declaration for annexation of 80 acres adjacent to the WWTF for effluent disposal, which the City later purchased. The Regional Water Board is a responsible agency pursuant to CEQA. The Regional Water Board reviewed and considered the General Plan and negative declaration prepared by the Discharger. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

General Findings

50. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
51. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

52. California Water Code Section 13267(b) states that: "In conducting an investigation specified in subdivision (a), the Regional Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."
53. The technical reports required by this Order and the attached Monitoring and Reporting Program No. [R5-2007-____](#) are necessary to assure compliance with these waste discharge requirements. The Discharger operates the Facility that discharges the waste subject to this Order.
54. The California Department of Water Resources set standards for the construction and destruction of groundwater wells, as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to California Water Code Section 13801, apply to all monitoring wells.

Public Notice

55. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
56. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
57. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order No. 5-00-050 is rescinded and that, pursuant to Sections 13263 and 13267 of the CWC, the City of Kerman and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reporting Requirements, is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in Section 2521(a) of Title 23, California Code of Regulations, Section 2510 et seq., is prohibited. Discharge of waste classified as 'designated,' as defined in California Water Code Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

B. Effluent Limitations

1. The monthly average discharge flow shall not exceed:
 - a. 1.2 mgd until the Expansion Project is complete
 - b. 2.0 mgd after the Expansion Project is complete, and Provision G.18 satisfied.

2. The effluent discharge to Storage Ponds A through C and Disposal Ponds shall not exceed the following limitations:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅ ¹	mg/L	40	80
TSS ²	mg/L	40	80

¹ Five-day biochemical oxygen demand

² Total suspended solids

3. The arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period shall not exceed 20 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (80 percent removal).
4. The annual flow-weighted average EC of the discharge shall not exceed the flow-weighted average EC of the source water plus 500 µmhos/cm or a maximum of 1,000 µmhos/cm, whichever is less. The flow-weighted average of the source water shall be a moving average for the most recent 12 months.

C. Discharge Specifications

1. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
2. Public contact with effluent shall be precluded through such means as fences, signs, or acceptable alternatives.

3. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.
4. Disposal ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
5. On or about **1 October** of each year, available disposal pond storage capacity shall at least equal the volume necessary to comply with [Discharge Specification C.4](#).
6. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
 - c. Dead algae, vegetation and other debris shall not accumulate on the water surface.
 - d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but **not during**, the April 1 to **June 30** bird nesting season.
7. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

D. Sludge Specifications

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation.

1. Sludge and solid waste shall be removed from screens, sumps, aeration basins, ponds, clarifiers, etc. as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property.

3. Any handling and storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations of this Order.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board or State Water Board or a local (e.g., county) program authorized by a regional water quality control board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 2004-12-DWQ, "General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities"). For a biosolids use project to be authorized by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
6. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

E. Pretreatment Requirements

1. The Discharger shall implement the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
 - a. Wastes that create a fire or explosion hazard in the treatment works;
 - b. Wastes that will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
 - c. Solid or viscous wastes in amounts that cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
 - d. Any waste, including oxygen demanding pollutants (BOD₅, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

- e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the treatment works is designed to accommodate such heat;
 - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - g. Pollutants that result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and
 - h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.
2. The Discharger shall implement the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:
- a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or
 - b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

F. Groundwater Limitations

1. Release of waste constituents from any treatment or storage component associated with the WWTF shall not cause or contribute to groundwater:
- a. Containing concentrations of constituents identified in Title 22 in excess of the MCLs quantified therein, or natural background quality, whichever is greater.
 - b. Containing taste or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses.

G. Provisions

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as Standard Provisions(s).
2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. [R5-2007-_____](#), which is part of this Order, and any revisions thereto as adopted by the Regional Water Board or approved by the Executive Officer. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger self-monitoring reports.

3. The Discharger shall keep at the WWTF a copy of this Order, including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.
4. The Discharger shall not allow pollutant-free wastewater to be discharged into the Facility collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
5. The Discharger must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger only when the operation is necessary to achieve compliance with the conditions of the Order.
6. All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
7. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Discharger shall submit to the Regional Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
8. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the appropriate Regional Water Board office.

9. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Regional Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
10. As a means of discerning compliance with [Discharge Specification C.3](#), the dissolved oxygen content in the upper zone (1 foot) of effluent in the effluent storage ponds shall not be less than 1.0 mg/L for three consecutive sampling events. Should the DO be below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board and propose a remedial approach to resolve the low DO results **within 30 days**.
11. The Discharger shall maintain and operate all ponds sufficient to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain in each pond permanent markers with calibration that indicates the water level at design capacity and enables determination of available operational freeboard.
12. The Discharger shall submit the technical reports and work plans required by this Order for Regional Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. The Discharger shall proceed with all work required by the following provisions by the due dates specified.
13. **By 15 January 2008**, the Discharger shall submit a Work Plan evaluating the existing groundwater network and its effectiveness to investigate the areas affected and potentially affected by the WWTF and its discharge(s) to land. Based on the evaluation, the Work Plan shall propose additional groundwater monitoring wells, as appropriate. This shall include an additional upgradient well that will be representative of background groundwater and downgradient wells within the vicinity of the new ponds, as appropriate.

The Work Plan shall satisfy the information needs specified in the monitoring well installation section of [Attachment D](#), *Standard Monitoring Well Provisions for Waste Discharge Requirements*. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well*

Standards: State of California Bulletin 94-81 (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC §13801.

The Work Plan must also include:

- A description of the area's hydrogeology, existing wells (active and otherwise), local well construction practices and standards, well restrictions, and groundwater extraction and recharge patterns.
 - A discussion of the potential horizontal and vertical extent of percolated effluent and adverse effects on receiving groundwater from the WWTF and its discharge(s) to land.
 - A proposed groundwater monitoring program to characterize groundwater for the constituents identified in the monitoring and reporting program. The program must identify the statistical methods that will be used to characterize groundwater **within two years** after groundwater well installation. Determination of groundwater quality shall be made using an appropriate statistical method [e.g., Title 27, Section 20415(e)(10)], and shall be based on representative data (typically from at least eight data points).
14. **By 15 April 2008**, complete well installation and commence groundwater monitoring of existing and any new wells in accordance with the work plan submitted pursuant to Provision G.4.
 15. **By 15 May 2008**, submit a monitoring well installation report that meets the requirements of [Attachment D](#).
 16. **By 15 April 2010**, the Discharger shall submit a technical report evaluating those constituents that threaten to degrade groundwater. The technical report shall also demonstrate that the treatment facilities, sludge handling and storage facilities, and effluent disposal resulting from the Expansion Project will not unreasonably degrade groundwater in accordance with Regional Water Board plans and policies and the CWC.
 17. Upon completion of tasks set forth in [Provisions G.13 through G.16](#), the Regional Water Board will consider the evidence proved regarding groundwater and the discharge and reopen the WDRs to evaluate the effluent limitations and conditions of this Order to ensure consistency with water quality policies and plans and the CWC, as appropriate.
 18. For authorization to discharge a monthly discharge flow of 2.0 mgd, the Discharger shall submit certification from a California registered civil engineer that the Expansion Project is complete and the WWTF can treat and dispose of these flows. Satisfaction of this provision is subject to written Executive Office approval.

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2007-_____
CITY OF KERMAN WWTF
FRESNO COUNTY

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I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer

Order Attachments:

Monitoring and Reporting Program

A Vicinity Map – WWTF

B. Plan View – Existing WWTF and Expansion Project

C. Process Flow Diagram

D. Standard Monitoring Well Provisions for Waste Discharge Requirements
Information Sheet

Standard Provisions (1 March 1991) (separate attachment to Discharger only)

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